

THE TYPE-SPECIES OF *MONOPSYLLUS* KOLENATI, 1857 (INSECTA, SIPHONAPTERA) AND RELATED MATTERS. Z.N.(S.) 1709By G. H. E. Hopkins (*Honorary Associate, British Museum (Natural History)*)

In the case of the type-species of *Monopsyllus* Kolenati, 1857, the extraordinary methods of Kolenati have given rise to a situation in which the resultant confusion seems incapable of solution except by the use of the plenary powers of the International Commission on Zoological Nomenclature, so I am asking the Commission to take the necessary action under these powers.

2. The generic name was first published in 1857 (*Wiener entom. Monatschrift* 1 : 65) where Kolenati wrote "Zu *Monopsyllus* (eine Borste an den Fühlern, ein Ctenidium am Pronotum, kein Augententidium, kein Zahn am Kopfe) gehört *sciuri* u.dgl." Since no other species of flea is mentioned by name, this is a description of *Monopsyllus sciuri* as well as of the genus *Monopsyllus*, of which *M. sciuri* is type-species, by monotypy.

3. In all recent publications the type-species of *Monopsyllus* is invariably given as *Ceratophyllus* or *Monopsyllus* [recte *Pulex*] *sciurorum* Schrank, 1803, but as shown in para. 2 this is incorrect. There is no question as to the name of the type-species of *Monopsyllus*, but its identity is a very different matter. Kolenati's original description of *Monopsyllus sciuri* (quoted above) is not diagnostic, though it suggests a member of the Ceratophyllidae, so it is necessary to turn to other papers by Kolenati for clues to its identity. In 1856 (*Parasiten der Chiroptern*, Brünn edition, p. 32) and 1857 (p. 32 of the Dresden edition of the same work) he wrote "Der Eichhörnchenfloh *Ceratopsyllus sciuri* ist *monoctenus* und hat an den Fühlern nur eine Borste." It has been disputed since whether "*monoctenus*" is a name and, if so, whether it is available, not being binary, but it has been quoted as an earlier name for *sciuri*, for which it is regarded as an alternative name. This apparently derives mainly from the fact that Kolenati, 1863, in a much more accessible work (*Hor. Soc. ent. ross.* 2, 38), listed *Ctenophthalmus bidentatus* Kolenati (a *nomen nudum* in the paper cited by Kolenati), *Ceratopsyllus monoctenus* and "*Pulex sciuri* Auctorum. *Pulex sciurorum* Schrank" as synonyms of *Ctenopsyllus bidentatus* Kolenati, figured on pl. 3, fig. 9 of Kolenati's 1863 paper. The figure is better than most of Kolenati's and is a quite recognizable representation of the species now known as *Peromyscopsylla bidentata* (Kolenati), but it cannot represent the type-species of *Monopsyllus* because it shows clearly the "Augententidium" whose absence is an important part of Kolenati's original description of the genus (see para. 2).

4. Rothschild (1911a, *Ann. Sci. nat. Zool.* (9) 12 : 215) stated that the type of *Ctenopsyllus bidentatus* Kol. was in the Paris museum and thus selected the single specimen from Kolenati's collection in the museum as lectotype of this nominal species: he also noted (1911b, *Novit. zool.* 18 : 56) that the specimen had been labelled *monoctenus* and therefore placed *monoctenus* as a senior synonym of *bidentatus*. The specimen is still in the Paris museum, but the name *monoctenus* is neither in Kolenati's writing nor in Rothschild's and must have been written by someone who relied on Kolenati's erroneous synonymy of 1863 (see para. 3). But it was not because *C. bidentatus* is not a *Monopsyllus*

(even in the widest sense) but because he regarded it as not binary that Dampf (1912, *Schr. phys.-ökon. Ges. Königs.* 52 : 277) rejected the name *monoctenus* and thus ensured a very short life for Rothschild's acceptance of Kolenati's erroneous synonymy of 1863.

5. The next error was with regard to the identity of the true type-species of *Monopsyllus*, *M. sciuri* Kolenati, 1857 (see para. 2). Jordan & Rothschild (1920, *Ectoparasites* 1 : 62) placed this name as a synonym of *Ceratophyllus* [recte *Pulex*] *sciurorum* Schrank, stating " *monoctenus* being a new name proposed by Kolenati for ' *sciuri* auct., recte *sciurorum* auct.' ". This statement has been accepted by all subsequent authors (notably by Jordan, 1933, *Novit. zool.* 39 : 78, when he revived Kolenati's generic name and by Johnson, 1961, *Tech. Bull. U.S. Dept. Agric.* No. 1227 : 1-69 in her revision of the North American species of the taxon), but it is incorrect for Kolenati never mentioned Schrank's *Pulex sciurorum* until 1863. But to regard any other species of flea as type of *Monopsyllus* would cause immense confusion without any compensating advantage because of the universal acceptance of Jordan & Rothschild's erroneous statement of 1920.

6. As already stated (para. 3) the name *monoctenus* was first placed as a synonym of *sciuri* in 1863, when Kolenati placed both these names as synonyms of *Ctenopsyllus bidentatus*, erroneously (see para. 3). There is, however, nothing in the original description of *Monopsyllus sciuri* Kolenati, 1857 (quoted in para. 2) to suggest that it is not the same as Schrank's species.

7. The worst confusion is with regard to the name *monoctenus*. The form in which it was first published is quoted in para. 3 and appeared on p. 32 of both editions of *Parasiten der Chiroptern* (1856 and 1857). It has been regarded as not a binomen and therefore not available, but I regard it as an alternative name for *Ceratopsyllus sciuri* Kolenati, 1856, as having been published as a *Ceratopsyllus* and therefore as available, but a junior objective synonym of *Ceratopsyllus sciuri*. Later (1857, *Wiener ent. Monatschrift* 1 : 66) Kolenati used the name *Ceratopsyllus monoctenus* again " Ein *Ctenidium* (am Pronotum), *Ceratopsyllus monoctenus* Kolenati ", but (judging from the generic descriptions on p. 65) for a bat-flea. This junior homonym has, therefore nothing to do with *Monopsyllus sciuri* Kolenati, 1857. Kolenati's treatment of the name in 1863 is quoted in para. 3. Apart from the error of Rothschild (1911b, *Novit-zool.* 18 : 56) in accepting Kolenati's erroneous synonymy of 1863 (see para. 4) no subsequent author has used the specific name *monoctenus*.

8. Kolenati's later papers therefore throw no light on the identity of *Monopsyllus sciuri* Kolenati, 1857, since the statement that this specific name is a *nomen novum* for *Pulex sciurorum* Schrank is erroneous, but there is nothing in the original description to suggest that Kolenati's species was not the same as Schrank's.

9. Summarizing the various names that have been applied rightly or wrongly to *Monopsyllus sciuri* Kolenati, 1857:

- (a) *Monopsyllus sciuri* Kolenati, 1857 (*Wiener ent. Monatschrift* 1 : 66) is the type of *Monopsyllus* by monotypy. This name is perhaps a synonym of *Ceratopsyllus sciuri* Kolenati 1856 and 1857 (*Parasiten der Chiroptern* p. 32) but as all that Kolenati states about this latter species is that it

“ ist *monoctenus* und hat an den Fühlern nur eine Borste ”, and as his synonymies in his 1863 paper are utterly unreliable, it is impossible to decide this point.

- (b) *Ceratopsyllus monoctenus* Kolenati, 1856 (*Parasiten der Chiroptern*, Brünn edition, p. 32) and 1857 (*Parasiten der Chiroptern*, Dresden edition, p. 32) is an objective synonym of *Ceratopsyllus sciuri* Kolenati, 1856 and 1857 (l.c.).
- (c) *Ceratopsyllus monoctenus* Kolenati, 1857 (*Wiener entom. Monatschrift* 1 : 66) is a junior homonym of *Ceratopsyllus monoctenus* Kolenati, 1856, and the species to which the name was applied appears to be quite different, though Kolenati's methods are such that certainty is unattainable.
- (d) *Ceratopsyllus monoctenus* Kolenati, 1863 (*Hor. Soc. ent. ross.* 2 : 38, as a synonym of *Ctenopsyllus bidentatus* Kolenati) is a junior homonym of *Ceratopsyllus monoctenus* Kolenati, 1856 (see para. 9 (b)).
- (e) There is nothing in the original description of *Ceratopsyllus sciuri* Kolenati, 1856, to suggest that it is not a synonym of *Pulex sciurorum* Schrank, but it is not a *nomen novum* for the latter, which is universally (though incorrectly) accepted as type-species of *Monopsyllus*.
- (f) No type-material is known to exist for either of Kolenati's nominal species, *sciuri* and *monoctenus*. The material in the Berlin Zoological Museum was listed by Jordan and Rothschild in 1911 (*Novit. zool.* 18 : 57-89) and that in the Paris Museum by Rothschild (1911, *Ann. Sci. nat. (Zool.)* 12 : 203-216). The latter museum does contain the lectotype of *Ctenopsyllus bidentatus* Kolenati, 1863, but this is certainly not a syntype of *Monopsyllus sciuri* or *Ceratopsyllus sciuri* Kolenati, 1857 or of *Ceratopsyllus sciuri* Kolenati 1856.

10. The position with regard to *Pulex sciurorum* Schrank, 1803 is much less confusing. It was described (Schrank, 1803, *Fauna boica* 3(1) : 195) from material obtained “ im Balge der Eichhörchen und Haasen ”. The description is merely “ Lanzettförmig, schwächig, pechbraun ” which is quite undiagnostic, and the host-records suggest the probability that at least two species were included under the name. No locality was mentioned, but as the subtitle of the book refers to “ in Baiern einheimischen und zahmen Thiere ” it is reasonable to assume that the material was obtained in Bavaria. The fate of Schrank's collection is not mentioned by Horn (1926, *Suppl. ent.* No. 12) and there are no specimens in the Berlin Zoological Museum (see Jordan and Rothschild, 1911, *Novit. zool.* 18 : 77) which appear to be syntypes of *Pulex sciurorum* Schrank. While on a visit to the Munich Museum in 1938 I was informed that nothing is known of the fate of any of the parasites described by Schrank.

11. Bouché (1835, *Nova Acta Leop.-Carol.* 17 : 506) redescribed a flea which he believed (probably correctly) to be *Pulex sciurorum* Schrank, and Taschenberg (1880, *Die Flöhe* : 75) did the same, though attributing the name to Bouché, but neither of these authors gave any really diagnostic characters and it was not until 1898 that Wagner (*Horae Soc. ent. ross.* 31 : 568, pl. 8 fig. 4) attached the name *sciurorum* to a single recognizable species by describing and figuring a “ *Ceratophyllus sciurorum* B. var *dryas* n. ” which is now regarded as a

synonym of *Monopsyllus s. sciurorum* (Schrank). This species (the commoner of the two species of Ceratophyllidae found regularly on *Sciurus vulgaris* in Central Europe) has borne the specific name *sciurorum* ever since, but the situation is obviously very unsatisfactory, in the complete absence of type-material for any nominal species described prior to 1898 and doubt as to the name and identity of the type-species of *Monopsyllus*.

12. I therefore select as neotype of *Pulex sciurorum* Schrank a male specimen of the commoner of the two species of flea which occur regularly on squirrels in Bavaria. It is distinguishable from other European Ceratophyllidae by the following characters: First two rows of occipital bristles incomplete, each row consisting of only the lowest bristle or the lowest two. Labial palp not extending beyond tip of fore trochanter. Pronotal comb consisting of fewer than 24 spines (usually 18 or 20). Outer surface of fore femur with a number of small lateral bristles; inner surface of mid and hind coxae with longish thin bristles at most in apical half; none of the 5 lateral plantar bristles on each side of fifth segment of hind tarsus markedly displaced towards middle of plantar surface; first segment of hind tarsus not as long as sum of lengths of second, third, and fourth segments. Distal half of sternum VIII of male a narrow sclerite with almost parallel sides and bearing 0-2 bristles. Movable process of clasper without spiniform bristles, its anterior and posterior margins subparallel. The species is well figured by Smit, 1957 (*Handb. Identif. Brit. Ins.* 1, part 16, figs. 156-158). The neotype of *Pulex sciurorum* Schrank is in the collection of the British Museum (Natural History), housed at the Zoological Museum, Tring, and bears on red labels the following particulars: *Pulex sciurorum* Schrank, 1803, Neotype ♂. Planegg, about 12 km. S.W. of München, Bavaria, from *Sciurus vulgaris*. Nov. 1937. G. Küsthardt. Also, on a white label: C. Rothschild Coll. Brit. Mus. 1923.615.

13. *Monopsyllus Kolenati* is not the type-genus of any family-group taxon.

14. In order to preserve universally-accepted usage and to avoid the confusion that any alteration of this usage would entail, I appeal to the International Commission on Zoological Nomenclature to take the following action:

(1) to use its plenary powers:

- (a) to set aside all designations of a type-species for the genus *Monopsyllus Kolenati*, 1875, made prior to the decision now proposed;
- (b) to designate *Pulex sciurorum* Schrank, 1803, as interpreted by the neotype described in para. 12 of this application, to be the type-species of *Monopsyllus Kolenati*, 1857;
- (c) to suppress for the purposes of the Law of Priority but not for those of the Law of Homonymy:
 - (i) the specific name *sciuri* Kolenati, 1856, as published in the binomen *Ceratopsyllus sciuri* (1856, *Parasiten der Chiroptern*, Brünn edition : 32);
 - (ii) the specific name *sciuri* Kolenati, 1857, as published in the binomen *Monopsyllus sciuri* (1857, *Wiener entom. Monatschrift* 1 : 65);

- (iii) the specific name *monoctenus* Kolenati, 1856, as published in the binomen *Ceratopsyllus monoctenus* (1856, *Parasiten der Chiroptern*, Brünn edition : 32);
- (2) to place on the Official List of Generic Names in Zoology the following name: *Monopsyllus* Kolenati, 1857 (gender : masculine) type-species, by designation under the plenary powers : *Pulex sciurorum* Schrank, 1803 (Insecta: Siphonaptera) ;
- (3) to place on the Official List of Specific Names in Zoology the following name: *sciurorum* Schrank, 1803, as described (Schrank, 1803, *Fauna boica* 3 (1) : 195) under the binomen *Pulex sciurorum*, and as interpreted by the neotype designated in para. 12 of this application ;
- (4) to place on the Official Index of rejected and invalid names in Zoology the names which I have proposed in para. (1) (c) above should be suppressed under the plenary powers.